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CASE REPORT

Broad ligament uterine fibroid: Management with Davinci robotic myomectomy

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KEYWORDS

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Abstract *Background:* We describe a patient with two fibroids; the largest was a broad ligament fibroid, which was managed successfully with robotic assisted laparoscopic myomectomy. It is well known that myomectomy of a large broad ligament fibroid presents a challenge to the surgeon with intraoperative complications such as excessive bleeding and ureteric injury or later complications such as pelvic hematoma and infection.

Case report: A 40-year-old nulliparous white female presented with dysmenorrhea, menorrhagia and pelvi-abdominal mass and primary infertility. Trans-vaginal 2D ultrasound (US) revealed an enlarged uterus 9.6/6.1/7.9 cm in dimension. Two uterine fibroids, intramural sub-serous in nature were seen on trans-vaginal 2D US. Trans-vaginal US with Doppler flow study suggested that the larger fibroid is broad ligament in nature with minimal vascularity between the broad ligament fibroid and the uterus. The patient underwent robotic assisted laparoscopic myomectomy. First an intramural sub-serous fibroid was removed, then a large broad ligament fibroid was dissected from the uterus and the anterior leaf of the broad ligament was sutured. A diagnostic hysteroscopy was performed at the end of the procedure and revealed a normal endometrial cavity. Post-operative course was uneventful.

Conclusion: The aim of presenting this case was to demonstrate that in patients with a large broad ligament fibroid, who want to preserve their reproductive potential, robotic assisted laparoscopic myomectomy is feasible and safe. Trans-vaginal US plays an important role in determining the

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degree of attachment, location and vascularity between the uterus and the broad ligament fibroid, which in turn helps in the choice of surgical procedure and technique.

1. Introduction

Uterine leiomyomata, or myomas, are one of the most common benign tumors of the reproductive tract, affecting more than 70% of women in their lifetime (1). Approximately 25% of reproductive-aged women have myomas. Definitive surgical treatment of myoma is hysterectomy while myomectomy is the treatment for those women who have symptomatic myomas and desire uterine or fertility preservation (2,3). Leiomyomas can arise from any tissue including the broad ligament. The incidence of broad-ligament leiomyoma is $<1\%$. Myomectomy can be either done abdominally, laparoscopically or hystroscopically. Recent trends toward minimally invasive surgery have resulted in increasing numbers of laparoscopic and robotic-assisted myomectomies (4–6). Although minimally invasive surgery has known advantages over open surgery, including shorter hospital stay, quicker recovery, less blood loss, and fewer postoperative adhesions, most of the myomectomies are done abdominally. This is due to the complexity and the necessity of extensive suturing for the desired multi-layered uterine closure, which is technically hard to do laparoscopically (7,8). Traditional laparoscopic myomectomy requires advanced surgical skills and thus may only be offered to select patients on the basis of myoma characteristics and surgeons' expertise. The introduction of robotic surgery has allowed more surgeons to perform complex laparoscopic procedures (9). The robotic surgical system allows 3-dimensional perception of the surgical field and improved ease of multi-layered uterine closure. This has led to an increase in the number of robotic-assisted laparoscopic myomectomies performed worldwide (5,10,11).

2. Case description

A 40-year-old nulliparous white female presented with dysmenorrhea, menorrhagia, pelvi-abdominal mass measuring about 9 cm and primary infertility. Trans-vaginal 2D US revealed an enlarged uterus $9.6 \times 6.1 \times 7.9$ cm in dimension. Two uterine fibroids intramural sub-serous in nature were seen on trans-vaginal 2D US measuring 7.1×6.2 cm, 3.6×4.2 cm in diameter. Trans-vaginal US with Doppler flow study suggested that the larger fibroid is a broad ligament in nature and that there was minimal vascularity in the area of attachment between the broad ligament fibroid and the uterus (Fig. 1).

Trans-vaginal 2D US with saline infusion hysterosonogram (SIH) showed that the endometrial cavity was not affected .Trans-vaginal 3D US confirmed the presence of a large broad ligament fibroid (Fig. 2).

Minimally invasive surgery was selected as per the patient request and based on the assessment and experience of our group. Robotic myomectomy was selected in this case as it provides better visualization, dissection and hemostasis than operative laparoscopy, especially in this critical area where the myoma is in close proximity to the ureter and the uterine vessels. The patient underwent robotic assisted laparoscopic myomectomy (Figs. 3a–3d. First a 4 cm intramural sub-serous fundal fibroid was removed. Then the broad ligament was opened showing a large broad ligament fibroid (9 cm in diameter) attached to the lower uterine segment with no attachment to the cervix and with a wide stalk measuring about 4 cm (Fig. 3b). Using both monopolar and bipolar cautery the fibroid was dissected from the uterus. There was no need to take any uterine sutures as complete hemostasis in the pedicle was achieved using the bipolar cautery (Fig. 3c). The anterior leaf of the broad ligament was sutured.

Care was taken to avoid injury of the right ureter and uterine vessels. Blood loss during the procedure was minimal. The fibroids were morcellated and removed from the peritoneal cavity. Diagnostic hysteroscopy, performed at the end of the procedure, to rule out any small submucous fibroids or polyps

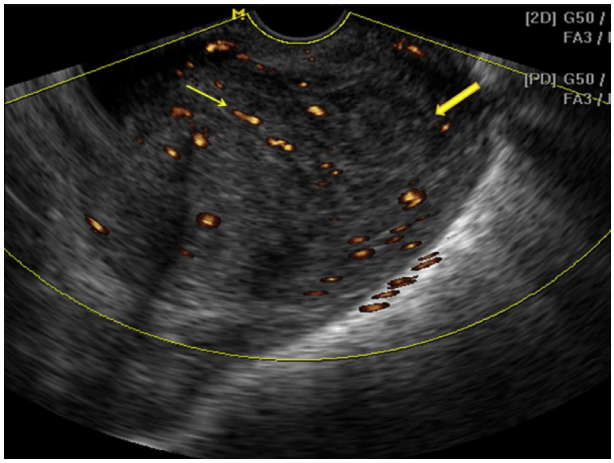

Figure 1 Trans-vaginal US with Doppler showing minimal vascularity between the broad ligament fibroid and the uterus.

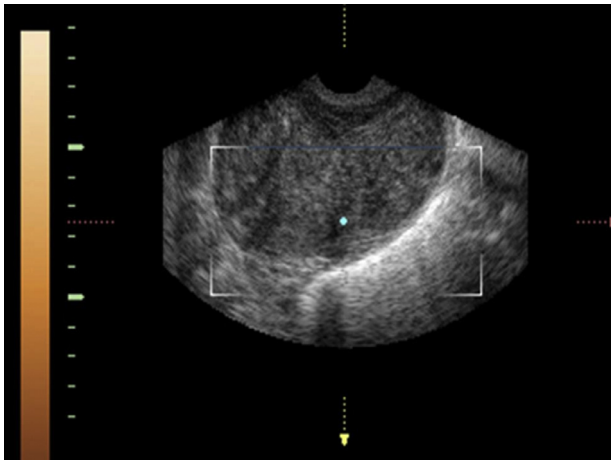

Figure 2 Trans-vaginal US showing large broad ligament fibroid.